DRAFT VERSION #2, REVISION 1
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# REGULATORY ALTERNATIVES PAPER

*Prepared by:*

The Incinerator Work Group

*Submitted to:*

ICCR Coordinating Committee
Long Beach, California

*July 28, 1998*

NOTICE: THIS IS A WORKING DRAFT OF VERSION 2, REVISION 1, OF THE INCINERATOR WORK GROUP'S REGULATORY ALTERNATIVES PAPER. IT HAS BEEN PREPARED FOR WORK GROUP REVIEW AND DOES NOT REPRESENT A WORK GROUP PRODUCT AT THIS TIME.

# MEMORANDUM

**To:** ICCR Coordinating Committee
**From:** Incinerator Work Group
**Subject:** **DRAFT REGULATORY ALTERNATIVES PAPER**
**Date:** July 28, 1998

*This Regulatory Alternatives Paper (RAP) has been prepared by the Incinerator Work Group (IWG) for presentation to the ICCR Coordinating Committee (CC) at its July 28-29, 1998, meeting in Long Beach, California. While it would be unrealistic to expect every IWG member to agree with every detail in a complex document such as this, the IWG concurs with the overall content and focus of the RAP and has reached consensus on submitting it to the CC. The EPA has requested that the CC forward this draft version of the RAP, with any comments or additional recommendations the CC would like to add, to EPA at the July CC meeting. EPA will begin drafting its summary of regulatory alternatives in August, 1998. As a result, forwarding this draft of the RAP to EPA at the July meeting will provide EPA an opportunity to give full consideration to the information in the RAP in drafting its summary document. The IWG has discussed this request from EPA and, having reached closure, recommends that the CC forward this draft of the RAP to EPA.*

## INTRODUCTION

The Incinerator Work Group (IWG) of the Industrial Combustion Coordinated Rulemaking (ICCR) has prepared this draft Regulatory Alternatives Paper (RAP) for review by the ICCR Coordinating Committee (CC). The IWG recommends that the CC adopt this RAP as Committee recommendations to EPA for consideration in preparing a summary of regulatory alternatives, which the Agency must submit to litigants pursuant to a consent decree involving industrial and commercial waste incinerators. EPA's summary of regulatory alternatives is due to the litigants on November 16, 1998.

The RAP is an intermediate product in the regulatory development process. It contains recommendations regarding categories of *non-hazardous solid waste incinerators* considered for regulation under section 129 of the *Clean Air Act*, the pollutants to be regulated, and potential control alternatives for each incinerator subcategory. Additionally, the RAP contains other relevant subcategory-specific information such as subcategory population statistics, combustion device descriptions, the status of data collection and analysis, and issues and needs. The information and recommendations presented in the RAP are preliminary and will continue to evolve throughout the regulatory development process.

The ICCR CC is chartered under the Federal Advisory Committee Act (FACA). As such, the work of the CC and the ICCR's seven work groups is conducted by *stakeholders* representing industries, environmental groups, State and local agencies, and other interested parties. The ICCR's five source work groups address incinerators, boilers, process heaters, stationary gas turbines, and internal combustion engines. These source work groups are supported by two additional work groups responsible for testing/monitoring and economics. All seven work groups and their organizational relationship to the CC are illustrated in Figure 1. Although the IWG has taken the lead in preparing this RAP, the Boiler Work Group (BWG) has also contributed information on source categories potentially covered under Section 129, and the Process Heater Work Group (PHWG) may have Section 129 source categories to add in the future.

This memorandum is organized into sections on background, applicability, subcategory characterizations and regulatory alternatives, pollution prevention, statutes and executive orders, and issues and needs. Additionally, draft applicability language and definition sheets on each emission source subcategory are attached.

**BACKGROUND**

The mission of the IWG is to develop recommendations for consideration by the CC in developing recommendations to EPA regarding the development of non-hazardous solid waste incineration regulations under Section 129 of the *Clean Air Act*. In conducting its work, the IWG has been following an overall strategy that is illustrated in Figure 2. Beginning with a well defined focus, schedule, and approach, the IWG analyzed the ICCR databases, developed recommendations for new and existing combustion units within an overall regulatory framework, and identified emission source subcategories, floor levels of control, and control options for CC consideration. With input from the BWG, and considering the need to address Section 129 and other pollutants, the IWG prepared the RAP. Subsequent work will involve recommendations for an emission test program, refining our subcategory definitions, and providing cost, emission reduction, and other inputs into the economic and environmental impact analysis process. Ultimately, the IWG will recommend control options and emission limits, including pollution prevention options, operator training and certification, and new unit siting.

Much of the IWG's work has been conducted by subteams composed of work group members having similar interests. The IWG's four subteams and source category responsibilities are listed in Table 1. The subteams initially concentrated on reviewing and updating the ICCR databases for incineration units. As part of this effort, the subteams confirmed that units are correctly listed as incinerators in the databases. Additionally, erroneous information such as incorrectly listed unit designs, operating parameters, and waste types was corrected, and units no longer in operation were identified. More recently, the subteams have developed the recommendations for subcategory definitions,

control level floors, and control options that are presented in this RAP. The standard procedure has been for the subteams' work to be considered, commented on, and approved by the entire work group before being forwarded as recommendations to the CC.

Because Section 129 defines boilers and process heaters that combust non-hazardous solid waste as incineration devices, preliminary subcategories from the BWG have been included in this paper, and PHWG subcategories may be added in future drafts. However, the number and description of BWG and PHWG subcategories that will ultimately be addressed under Section 129 remains somewhat uncertain at this time because the Agency has not adopted a definition of nonhazardous solid waste for use in regulations developed under Section 129. This definition of nonhazardous solid waste is crucial to determining whether certain units assigned to the BWG and PHWG will ultimately be considered nonhazardous solid waste incineration units (i.e., subject to Section 129) or boilers and process heaters (i.e., subject to Section 112). The definition of nonhazardous solid waste is not as crucial to the IWG because all incinerators are considered subject to Section 129 regardless of the nonhazardous solid waste materials combusted.

The IWG has identified the following five non-hazardous solid waste incineration subcategories for possible regulation under Section 129:

- **Chemical, petroleum, and pharmaceutical waste incinerators**
- **Wood and wood waste incinerators** -- including separate groupings for milled solid and engineered wood; harvested wood and agricultural waste; construction, demolition, and treated wood wastes; and possibly finishing wastes
- **Pathological waste incinerators and crematories** -- including separate groupings based on feed rate for poultry farms; human crematories; and hospital, animal control, and research facilities
- **Drum reclaimer furnaces**
- **Parts reclaimer burnoff ovens**

Additionally the BWG has added the following subcategories, subject to a final definition of non-hazardous solid waste:

- [To be completed.]
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-

At this time the IWG envisions recommending a separate set of regulatory requirements (e.g., emission limits) for each of the above subcategories and groupings. However, further subdividing or combining of these subcategories and groupings may be necessary in the future as additional information is received and analyzed. Additionally, it may be necessary to create a *miscellaneous* or *other* category to ensure that any units not covered by the above subcategories are addressed.

The IWG recommends that the regulatory requirements for the above subcategories be addressed in a single rulemaking package (i.e., a single preamble and regulation for proposal, and the same for promulgation). Because Section 129 distinguished between industrial and commercial waste incinerators (ICWI) and other solid waste incinerators (OSWI), the IWG believes that the rulemaking package would also need to distinguish between these two categories of combustion units, or explicitly consider and reject this approach with a rational and logical explanation for why it is more reasonable to combine these two categories into one category (e.g., if the same emission limits were recommended for both categories). Although the November 16, 1998, consent decree only requires EPA to discuss regulatory alternatives for ICWI sources, the IWG has decided for the time being to include OSWI in this RAP due to the similarity of sources and because we hope to develop recommended regulations for these sources simultaneously with recommended regulations for ICWI. Thus, both the ICWI and OSWI sources would be addressed in the same rulemaking package.

Much of the IWG's past work has been devoted to analyzing data contained in the following three databases:

- **Inventory database** -- *a detailed listing of industrial and commercial combustion units used by all five ICCR source work groups and derived from existing state and federal databases.*

- **Information collection request (ICR)/survey database** -- *responses from a recent survey providing updated and detailed information for facilities identified in the inventory database as combusting non-hazardous solid waste.*

- **Emissions database** -- *emissions data from State agencies representing source testing of a variety of combustion units.*

The ICCR inventory database contains 8,091 facilities believed to have one or more incineration units. However, the responses to the ICR indicate that many of these units have been shut down or otherwise do not exist. Other units were eliminated from consideration because they were determined to be burning hospital and infectious medical waste, municipal waste, or other types of materials outside the scope of the ICCR. The

status of about 1,700 units remains unknown because of insufficient information. Taking all of these factors into consideration, our best estimate of the number of incineration units in the inventory and ICR databases that are currently in operation and being addressed by the IWG is about 1,600. However, this estimate could increase or decrease by several hundred units as more information becomes available (e.g., the results of a follow-up mailing to facilities not responding to the first mailing). Additionally, the number of incineration units may increase as boilers and process heaters are reclassified based on EPA's ultimate adoption of a definition of non-hazardous solid waste.

The extent to which the inventory and ICR databases capture all operating incinerators in the U.S. is unknown. However, based on population estimates for individual subcategories, we estimate that the inventory and ICR databases represent most of the wood, wood waste, and drum and parts reclaimer units currently operating in the U.S. and over 50% of the remaining incineration subcategories. However, none of the roughly 8,000 poultry farm incinerators are contained in the ICCR databases. (These units, typically rated at <100 lb/hr, have probably never been regulated or permitted due to their small size.) Although not all incineration units are captured within our databases, the IWG believes that the databases are representative of the cross-section of U.S. incinerators and provide a sufficient basis for rulemaking.

## APPLICABILITY

The recommendations presented in this RAP apply to all incinerators (including boilers and process heaters burning nonhazardous solid wastes) that are not exempt from Section 129 or addressed by other rulemakings. Section 129(g)(l) exempts wastes required to have a permit under Section 3005 of the Solid Waste Disposal Act (i.e., hazardous wastes), material recovery facilities which combust waste for the primary purpose of recovering metals, qualifying small power production and co-generation facilities, and air curtain incinerators combusting only yard and wood wastes and clean lumber. Additionally, municipal waste combustors and hospital and medical infectious waste incinerators would be exempt from this rulemaking because they are being addressed or are already covered by other rulemakings. Recommendations for draft applicability language and definitions, in regulatory format, are presented in Attachment A.

## SUBCATEGORY CHARACTERIZATIONS AND REGULATORY ALTERNATIVES

Recommendations for subcategory definitions and regulatory alternatives are presented for each subcategory in Attachment B and are summarized in Table 2. Additional information and recommendations are presented on pollutants considered for regulation (at a minimum the nine pollutants listed in Section 129), whether a subcategory falls under ICWI or OSWI, any groupings within the subcategory, population statistics, material combusted, combustion device description, the basis for subcategory bounds, the

floor level of control, the status of data collection and analysis, issues and needs, and other comments.

Based on the information currently available to the IWG, it appears that most existing units have minimal or no controls in place. The exception is for most drum reclaimer furnaces and parts reclaimer burnoff ovens, which appear to have thermal oxidizers and thermal oxidizer preheat. Good combustion practices are routinely applied to pathological units due to State regulations and could represent the MACT floor for this subcategory. Only very limited test data on most pollutants of interest are available for all incinerator subcategories, and the IWG and BWG have recommended test programs to address these testing needs. Some subcategories (e.g., wood and wood wastes) are small in terms of the number of operating units, and these may be candidates for merging into a larger subcategory.

**POLLUTION PREVENTION**

The IWG believes that pollution prevention should be considered an integral part of the Section 129 rulemaking and is committed to a further investigation of the feasibility and practicality of various pollution prevention techniques. This commitment is consistent with the goals of the *Pollution Prevention Act of 1990* and EPA policy to consider and facilitate the adoption of source reduction techniques. Additionally, it is EPA's opinion that Section 129(a)(3) of the *Clean Air Act* anticipates that pollution prevention may be included in regulations (i.e., as the basis of a floor or control level above the floor) by stating that standards "... shall be based on methods and technologies for the *removal* or destruction of pollutants *before*, during, or after combustion ...[emphasis added]."

As a starting point, the IWG will be considering the waste management plan approach used in the Section 129 rules for municipal waste and hospital and medical infectious waste incineration. We generally agree with the overall objective of waste management plans, which is to examine the feasibility, practicality, and net environmental impact of and approach to separating certain components of solid waste from the combustion waste stream so as to reduce the amount of toxic emissions from the combusted waste.

Additionally, the IWG will be examining the list of possible pollution prevention items prepared by the CC regarding good combustion practices (GCP), operator training, and pollution prevention metrics and will review additional CC information on alternative compliance and pollution prevention planning. The IWG's response to the CC's initial pollution prevention list is summarized below.

Good combustion practices. The CC has prepared guidance for the source work groups to consider in evaluating GCP options. The good combustion techniques covered in this guidance include:

- # Operator practices
- # Maintenance knowledge and practices
- # Stoichiometric ratio (air/fuel)
- # Firebox residence time, temperature, and turbulence
- # Fuel/waste quality, handling, sizing, dispersion, and liquid atomization
- # Combustion air distribution

Implementation of these techniques could be accomplished through a combination of documented operating and maintenance procedures, logs and record-keeping, training on equipment and procedures, routinely scheduled inspections and maintenance, burner and control adjustments, system design, fuel/waste monitoring, and various system adjustments. (Although operator training itself could also be considered a good combustion practice, it is covered separately below.) The IWG believes that these techniques are potentially applicable to incineration units under Section 129, although the work group has not studied the specific applicability, benefit, disbenefit, or cost effectiveness of these techniques at this time.

The IWG will evaluate practical and effective combustion practices applicable to the IWG's subcategories. Because of the variety of incinerator designs and waste types being addressed by the IWG, it may be appropriate to develop a separate set of GCPs for each incinerator subcategory, and some subcategories may have no required GCPs. On the other hand, if there are practical and effective combustion practices that are the same or similar among all of the subcategories, the IWG may consider a single set of GCPs for all units covered under Section 129.

Operator Training/Qualification. Section 129(d) requires EPA to "... develop and promote a model State program for the training and certification of solid waste incineration unit operators ..." The CC's list of training/qualification activities for work group consideration includes the following definition of "operator:"

- # Operator means an individual or individuals whose work duties include the operation, evaluation, and/or adjustment of the combustion system.

The IWG will consider adopting this definition, although additional specificity will be needed and a clear distinction will have to be made between the incinerator "operator' and the "owner/operator" of the unit or facility.

The CC also lists specific training program elements for consideration, including:

- # Training and qualification criteria
- # Training programs and qualification exams
- # Training program materials and documentation of qualification

The IWG will consider these general requirements for some incinerator operators, although the details still need to be worked out. Additional work would be required to fine tune the recommended training content for the specific types of units covered under Section 129, and separate sets of training content for specific subcategories may prove to be necessary.

Metrics. Emission limits previously promulgated under Section 129 (i.e., the municipal waste and hospital and medical infectious waste rules) have been expressed in units of concentration (e.g., *ng/dscm* or *ppm*). Concentration units are effective in reducing emissions based on control device efficiency and may also encourage pollution prevention. However, some pollution prevention techniques that significantly reduce mass emission rates may not concurrently reduce mass concentrations.

To encourage pollution prevention, the CC has asked the work groups to consider metrics other than concentration emission limits, where the numerator in the emission limit would be based on pollutant mass (e.g., *ng*) and the denominator would be based on time, energy output, heat input, fuel/waste input, or unit of production. Unfortunately, compliance with such metrics may be impractical where the metrics are combustion unit size/capacity specific (e.g., metrics based on time), difficult to measure (e.g., metrics based on energy output, heat input, or fuel/waste input), or difficult to quantify (e.g., metrics based on unit of production). The IWG will consider the CC's recommendations on metrics and assess whether these recommendations are practical for compliance and effective in reducing emissions from Section 129 incineration units.

Regulatory Options. The CC has recommended considering regulatory options such as waste accounting and recordkeeping and work practice standards. Waste accounting and recordkeeping would provide a paper trail of waste feedstream composition, thereby highlighting opportunities for source separation, source elimination, or recycle/recovery of waste streams. Work practice standards would require specific handling or separation procedures for waste materials prior to burning, thereby reducing undesirable materials (e.g., waste components leading to specific HAP emissions) and potentially improving combustion efficiency (e.g., by removing high moisture content materials from the waste steam).

The IWG will consider both of these techniques, although further information is needed on: (1) what specific handling or separation procedures might be applied to each of the IWG's subcategories, (2) the data or reasoning (e.g., based on combustion chemistry or engineering calculations) leading to the conclusion that a specific handling or separation procedure would provide a significant net environmental benefit, and (3) evaluation of the potential benefit versus the burden imposed.

## STATUTES AND EXECUTIVE ORDERS

In addition to the substantive requirements imposed by the Clean Air Act when promulgating regulations, the Agency must comply with a number of administrative responsibilities prior to adopting regulations. Some of these obligations flow from statutes and others from executive orders (EOs) signed by the President as directives to the Executive Branch.

EPA must comply with administrative requirements in following five statutes at the proposal stage of a regulation's development.[1]

- Section 307(d) of the *Clean Air Act* requires that regulations under Section 129 be supported by a rulemaking docket and allow for both written and oral comment upon the proposed rule.

- Under the *Paperwork Reduction Act*, EPA must obtain a control number from the Office of Management and Budget (OMB) if the regulation contains any information collection request (reporting obligations under an applicable emission standard, for instance) calling for answers to identical questions posed to ten or more persons.

- The *National Technology Transfer and Advancement Act (NTTAA)* mandates that EPA must use existing suitable voluntary consensus standards (e.g., test methods) unless their use would be inconsistent with applicable law or otherwise impractical in EPA's judgement.

- If the proposed regulation will contain a federal mandate forcing State, local, and tribal governments, in the aggregate, or the private sector to spend in excess of $100 million in any given year, the *Unfunded Mandates Reform Act (UMRA)* requires EPA to prepare a statement identifying a number of economic and environmental costs and benefits associated with the proposed rule, both locally and nationally. UMRA also requires that, for proposed rules which require an UMRA statement, EPA must identify and consider a reasonable number of regulatory alternatives and select the least costly, most cost-effective, or least burdensome option that is consistent with the agency's statutory duties, unless EPA explains its choice not to select one of the foregoing options. UMRA lastly contains two consultation requirements: (1) EPA must consult with elected officers of State, local, and tribal governments with regard to proposed rules that contain significant Federal intergovernmental mandates, and (2) it must

[1]One additional statutory administrative requirement is triggered when the Agency promulgates *final* regulations. Under the Congressional Review Act, EPA generally must submit all rules of general applicability to Congress and the Comptroller General before the rule may take effect.

develop a small government agency plan (which provides for notice to, input from, and education for, small governments regarding a proposed rule) for any rule that might significantly or uniquely affect small governments.

# The *Regulatory Flexibility Act (RFA)*, as amended by the Small Business Regulatory Enforcement Fairness Act, requires EPA to prepare an initial regulatory flexibility analysis (IRFA), convene a small business advocacy review panel, and include the IRFA or a summary of it in the proposal's preamble, unless the Administrator can certify that a proposed regulation will not have a significant economic impact on a substantial number of small entities.

In addition to its statutory obligations, EPA has the following three EOs to consider.

# Under *EO 12875*, EPA must develop an effective process for elected officials and other representatives of State, local, and tribal governments to provide meaningful input on regulatory proposals. Also, EPA may not (unless required by law) promulgate a regulation that creates an unfunded mandate upon State, local, or tribal governments without either providing funds necessary to pay the direct costs of compliance or consulting with representatives of affected governments prior to promulgation. (This is the same requirement that Congress subsequently enacted in UMRA.)

# Prior to proposal, *EO 12866* requires that EPA seek involvement of parties affected by a proposed rule and suggests that at least a 60 day comment period on proposed rules be offered. The same EO also requires that EPA submit to OMB any proposed or final *significant* regulatory action for interagency review.[2]

# *E.O. 12898* specifies that EPA must make achieving environmental justice part of its mission by identifying and addressing, as appropriate, practicable, and permitted by law, disproportionately high and adverse human health or environmental effects of its rulemaking actions on minority

[2]*Significant* is defined as an action having an annual effect on the economy of $100 million or more; adversely affecting in any material way the economy, a sector of the economy, jobs, the environment, public health or safety, or affected governments or communities; creating a serious inconsistency or interfering with an action taken or planned by another agency; materially altering the budgetary impact of entitlements, grants, etc., or the rights/obligations of recipients; or raising novel legal or policy issues.

and low-income populations.[3]

The ICCR has, to date, laid the groundwork for developing recommendations aiding EPA's compliance with these obligations. Specifically, work groups currently are discussing recommendations for *model plants*, which will reflect the design of typical facilities in the affected industry and could be used when EPA seeks to conduct the economic and environmental analyses necessary to comply with UMRA, RFA, and *EO 12866.* The Agency could consider the effect of proposed regulations upon these model plants as illustrative of the impact the proposals may have nationally. In addition, ICCR work groups, in the course of recommending hazardous air pollutants (HAPs) for testing and regulation under Section 112, also have identified existing test methods for measuring HAPs, and recommendations that these existing test methods be considered for determining compliance with regulations could be useful to the Agency's compliance with the NTTAA's requirement to search for applicable voluntary consensus standards. Next, Section 129(a)(3) directs that standards for new sources incorporate "siting requirements that minimize, on a site specific basis, to the maximum extent practicable, potential risks to public health and the environment." Siting requirements may trigger environmental justice concerns, and the IWG expects to consider the Agency's Environmental Justice Implementation Plan to develop recommendations for consideration by the CC for developing recommendations to EPA that address such concerns. Finally, EPA will, of course, be complying with the other relevant statutes and EOs in a timely manner, and recommendations from the ICCR CC will be considered, as appropriate, by EPA in such compliance.

**ISSUES AND NEEDS** -- to be completed

[3]If a rule is *significant* under *E.O. 12866* and it involves an environmental health or safety risk that EPA has reason to believe may disproportionately affect children, *EO 13045* requires EPA to evaluate the environmental health or safety effects of the planned regulation on children and explain why the proposal is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency. Since the standards to be developed under Section 129 are technology-based and not health- or risk- based, *EO 13045* does not apply to the determination of MACT. The Incinerator Work Group is currently considering whether *EO 13045* would otherwise influence its other recommendations for regulatory development.

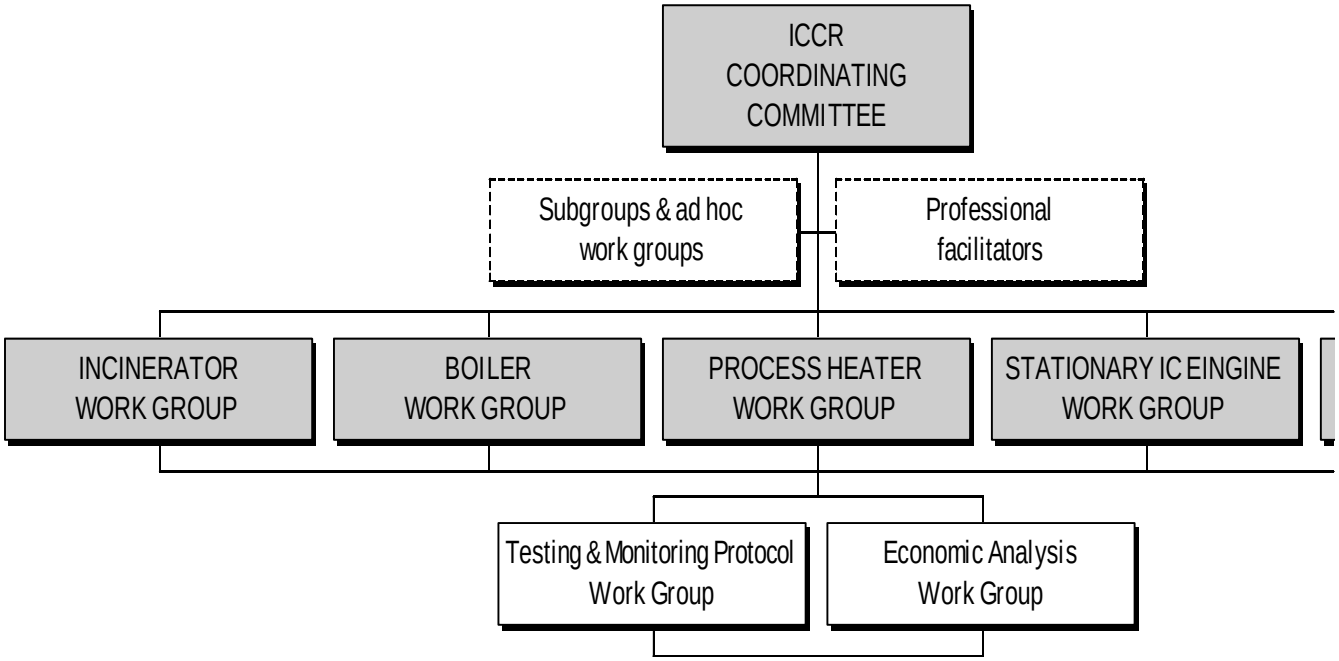


Figure 1. Illustration of ICCR organization chart.

TABLE 1. INCINERATOR WORK GROUP SUBTEAMS

| SUBTEAM NO. | SUBTEAM NAME | CURRENT SUBCATEGORY RESPONSIBILITIES |
|---|---|---|
| 1 | Pathological Wastes and Crematories | < *Poultry farms ... (<100 lb/hr)*<br>< *Human crematories ... (100-500 lb/hr)*<br>< *Hospital, animal control, research facilities ... (* |
| 2 | Chemical, Petroleum, and Pharmaceutical Solids, Liquids, and Sludges | < *Chemical, petroleum, and pharmaceutical waste not meeting other subcategory definitions)* |
| 3 | Wood, Construction & Demolition, and Agricultural Wastes | < *Wood and wood wastes, including these groupir*<br>*a. Milled solid and engineered wood*<br>*b. Harvested wood and agricultural*<br>*c. Construction, demolition, and treated wo*<br>*d. Finishing wastes (under consideration)* |
| 4 | Metal Parts and Drums | < *Drum reclaimer furnaces*<br>< *Parts reclaimer burnoff ovens* |

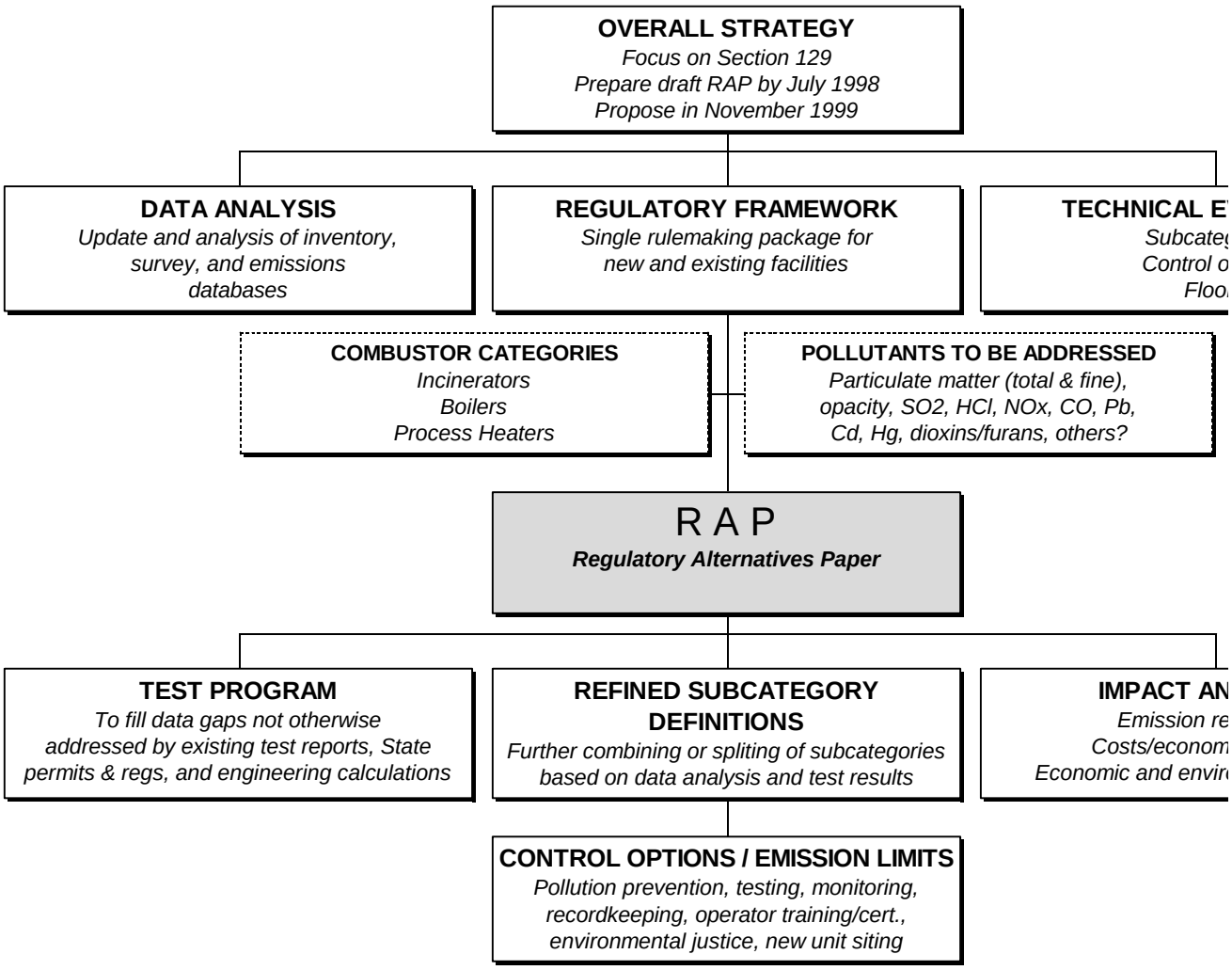


Figure 2. Illustration of steps leading to the RAP and beyond.

TABLE 2. SUMMARY OF SUBCATEGORY DEFINITIONS

| SUB-CATEGORY NAME | GROUPING WITHIN SUB-CATEGORY | MATERIAL COMBUSTED | ICWI or OSWI | EST. NO. OF UNITS | | POLLUTANTS CONSIDERED FOR REGULATION | FLO LEVI CON |
|---|---|---|---|---|---|---|---|
| | | | | IN DATA-BASE | NATION-WIDE | | |
| Chemical, Petroleum, and Pharmaceutical Solid, Liquid, and Sludge Waste Incinerators | None identified at this time | By-products of industrial operations (including combinations with less that 30% trash or less than 10% medical waste), environmental control device sludges, industrial process bio-solids, waste by-products, maintenance residues, off-test and out-dated materials, and packaging materials | ICWI | Approx. 100 | | Section 129 pollutants | |
| Wood and wood wastes | Milled Solid and Engineered Wood Wastes | Wastes and residues resulting from wood-working manufacturing activities, containing 2 to 15 percent by weight adhesives, glues, and binders in engineered woods, and containing no more than 5 percent by weight of contaminants such as cardboard, paper, paints, and solvents | OSWI | 17 | | Section 129 pollutants | No cor |

| SUB-CATEGORY NAME | GROUPING WITHIN SUB-CATEGORY | MATERIAL COMBUSTED | ICWI or OSWI | EST. NO. OF UNITS | | POLLUTANTS CONSIDERED FOR REGULATION | FL( LEVI CON |
|---|---|---|---|---|---|---|---|
| | | | | IN DATA-BASE | NATION-WIDE | | |
| “ | Harvested Wood and Agricultural Wastes | Wastes and residues resulting from land clearing, orchard, silvi-culture, nursery, green-house, agricultural, and forest management activities and sawmill operations and con-taining no more than 5 percent by volume of contaminants such as sand, dirt, cardboard, and paper | OSWI | 8 | | Section 129 pollutants | No cor |
| “ | Construction, Demolition, and Treated Wood Wastes | Wastes and residues resulting from: (1) the construction, remodel-ing, repairing, and demolition of individ-ual residences, com-mercial buildings, and other structures, and (2) the treatment of wood products that are impregnated or other-wise treated with various preservatives for the purpose of protecting or other-wise extending the structural properties of the wood | OSWI | 9 | | Section 129 pollutants | No cor |

| SUB-CATEGORY NAME | GROUPING WITHIN SUB-CATEGORY | MATERIAL COMBUSTED | ICWI or OSWI | EST. NO. OF UNITS | | POLLUTANTS CONSIDERED FOR REGULATION | FL( LEVI CON |
|---|---|---|---|---|---|---|---|
| | | | | IN DATA-BASE | NATION-WIDE | | |
| Pathological Waste and Crematory Incinerators | <100 lb/hr (primarily poultry farmers; also small animal crematories, veterinary centers, humane societies, and pharma-ceutical companies) | Human or animal remains, anatomical parts and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable) | OSWI | | 8,000 | Section 129 pollutants | Good combu practic |
| " | 100 to 500 lb/hr (primarily human crematories; also animal crematories, veterinary clinics, humane societies, and pharma-ceutical companies) | " | OSWI | | 2,000 | Section 129 pollutants | Good combu practic |

| SUB-CATEGORY NAME | GROUPING WITHIN SUB-CATEGORY | MATERIAL COMBUSTED | ICWI or OSWI | EST. NO. OF UNITS | | POLLUTANTS CONSIDERED FOR REGULATION | FLO LEVI CON |
|---|---|---|---|---|---|---|---|
| | | | | IN DATA-BASE | NATION-WIDE | | |
| " | >500 lb/hr (primarily animal disposal systems for hospitals, animal control facilities, and research facilities) | " | OSWI | | 100 | Section 129 pollutants | Good combu practic |
| Drum Reclaimer Furnaces | None | An incinerator used to reclaim steel containers (e.g., 55 gallon drums) for reuse or to prepare them for recycling by burning or pyrolyzing interior and exterior container coatings and residues prior to cleaning by abrasive shot blasting (cont-ainers must be empty as defined by RCRA prior to processing) | ICWI | 43 | 50 | To include Section 129 list | Therm oxidize prehea |

| SUB-CATEGORY NAME | GROUPING WITHIN SUB-CATEGORY | MATERIAL COMBUSTED | ICWI or OSWI | EST. NO. OF UNITS | | POLLUTANTS CONSIDERED FOR REGULATION | FLO LEVI CON |
|---|---|---|---|---|---|---|---|
| | | | | IN DATA-BASE | NATION-WIDE | | |
| Parts Reclaimer Burnoff Ovens | None | An Incinerator used to reclaim metal parts such as paint hooks and racks, electric motor armatures, transformer winding cores, and electroplating racks for use in their current form by burning off cured paint, plastisol (i.e., polyvinyl chloride and phthalate plasticizer), varnish, or unwanted parts such as plastic spacers or rubber grommets | ICWI | 299 | | Section 129 pollutants | Therm oxidize prehea |

**ATTACHMENT A**

DRAFT APPLICABILITY LANGUAGE AND DEFINITIONS
IN REGULATORY FORMAT

**Subpart [?] -- Standards of Performance for Solid Waste Incineration Units for Which Construction is Commenced After [date]**

**Section [?] Am I subject to this regulation?**

(a) Except as provided in paragraph (b) of this Section, the affected facility to which this subpart applies is each individual Solid Waste Incineration Unit for which construction or reconstruction is commenced after [date] or for which modification is commenced after [date].

(b) The following facilities are not subject to this subpart:

(1) Any incinerator or other unit required to have a permit under Section 3005 of the Solid Waste Disposal Act.

(2) Any materials recovery facility (including primary or secondary smelters) which combusts waste for the primary purpose of recovering metals.

(3) Any qualifying small power production facility, as defined in Section 3(17)(C) of the Federal Power Act (16 U.S.C. 769(17)(C)), or qualifying cogeneration facilities, as defined in Section 3(18)(B) of the Federal Power ACT (16 U.S.C. 796(18)(B)), which burn homogeneous waste (such as units which burn tires or used oil, but not including refuse-derived fuel) for the production of electric energy or, in the case of qualifying cogeneration facilities, which burn homogeneous waste for the production of electric energy and steam or forms of useful energy (such as heat) which are used for industrial, commercial, heating, or cooling purposes.

(4) Any air curtain incinerator that burns only wood wastes, yard wastes, and clean lumber and that complies with the opacity limitations in subpart [?].

(5) Any incinerator or other unit which meets the applicability requirements under subpart Cb, Ce, Ea, Eb, or Ec of this part (i.e., standards or guidelines for municipal waste and hospital and medical infectious waste incinerators).

(6) Municipal sewage sludge incinerators which meet the applicability requirements under subpart [?].

**Sec. [?] How are the terms used in this subpart defined?**

Air Curtain Incinerator means an Incinerator that operates by forcefully projecting a curtain of air across an open chamber or pit in which burning occurs; Incinerators of this type can be constructed above or below ground and with or without refractory walls and

floor.

Boiler means an enclosed device using controlled flame combustion and having the primary purpose of recovering and exporting thermal energy in the form of steam or hot water.

Chemical, Petroleum, and Pharmaceutical Solid Waste Incinerator means an Incinerator combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on an annual basis, of byproducts of industrial operations (including combinations with less that 30% trash or less than 10% medical waste), environmental control device sludges, industrial process biosolids, waste byproducts, maintenance residues, off-test and out-dated materials, and packaging materials.

Commercial and Industrial Solid Waste Incineration Units means the following types of Solid Waste Incineration Units: Chemical, Petroleum, and Pharmaceutical Solid Waste Incinerators; Drum Reclaimer Furnaces; Parts Reclaimer Burnoff Ovens; and [any other subcategories of boilers and process heaters].

Construction, Demolition, and Treated Wood Waste Incinerator means an Incinerator combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on a [time period] basis, of wastes and residues resulting from: (1) the construction, remodeling, repairing, and demolition of individual residences, commercial buildings, and other structures, including pallets; forming and framing lumber; treated lumber; shingles; tar-based products; plastics; plaster; wallboard; insulation material; broken glass; painted or contaminated lumber; chemically treated lumber; white goods; reinforcing steel; and plumbing, heating, and electrical parts; and (2) the treatment of wood products that are impregnated or otherwise treated with various preservatives (e.g., creosote, copper compounds, arsenic compounds, pentachlorophenol, [to be added]) for the purpose of protecting or otherwise extending the structural properties of the wood.

Drum Reclaimer Furnace means an incinerator used to reclaim steel containers (e.g., 55 gallon drums) for reuse or to prepare them for recycling by burning or pyrolyzing interior and exterior container coatings and residues prior to cleaning by abrasive shot blasting. (Containers must be empty as defined by RCRA prior to processing.)

Harvested Wood and Agricultural Waste Incinerator means an Incinerator combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on a [time period] basis, of wastes and residues resulting from land clearing, orchard, silviculture, nursery, greenhouse, agricultural, and forest management activities and sawmill operations and containing no more than 5 percent by volume of contaminants such as sand, dirt, cardboard, and paper.

Incinerator means a device that combusts Solid Waste for the primary purpose of reducing the volume of waste and does not incorporate heat recovery as part of its integral design.

Milled Solid and Engineered Wood Waste Incinerator means an Incinerator combusting Solid Waste comprised, in aggregate, of more than [number] percent by weight, as measured on a [time period] basis, of wastes and residues resulting from woodworking manufacturing activities, containing 2 to 15 percent by weight adhesives, glues, and binders in engineered woods, and containing no more than 5 percent by weight of contaminants such as cardboard, paper, paints, and solvents.

Other Solid Waste Incineration Units means the following types of Solid Waste Incineration Units: Construction, Demolition, and Treated Wood Waste Incinerators; Harvested Wood and Agricultural Waste Incinerators; Milled Solid and Engineered Wood Waste Incinerator; Pathological Waste and Crematory Incinerators; and [any other subcategories of boilers and process heaters].

Parts Reclaimer Burnoff Oven means an Incinerator used to reclaim metal parts such as paint hooks and racks, electric motor armatures, transformer winding cores, and electroplating racks for use in their current form by burning off cured paint, plastisol (i.e., polyvinyl chloride and phthalate plasticizer), varnish, or unwanted parts such as plastic spacers or rubber grommets.

Pathological Waste and Crematory Incinerator means an Incinerator combusting Solid Waste comprised, in aggregate, of more than 90 percent by weight, as measured on a daily basis (and more than 70 percent on an individual batch basis) of only human or animal remains, anatomical parts and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).

Process Heater means an enclosed device using a controlled flame and having the primary purpose of transferring heat to an industrial or commercial process.

Solid Waste means ... [recommended definition under discussion at EPA].

Solid Waste Incineration Unit means a distinct operating unit of any facility which combusts any Solid Waste material from commercial or industrial establishments or the general public.

Note: Other definitions will be included as solid waste boilers and process heaters are determined to be covered by this rulemaking.

**ATTACHMENT B**

DRAFT SUBCATEGORY DEFINITION SHEETS

**SUBCATEGORY NAME:** Chemical, petroleum, and pharmaceutical solids, liquids, and sludges

**ASSIGNED CAA Section (ICWI OR OSWI):** Section 129 (ICWI).

**GROUPINGS WITHIN SUBCATEGORY:** None identified at this time.

**POPULATION STATISTICS:** Approximately 100 combustors identified in the EPA databases.

**MATERIAL COMBUSTED:** Byproducts of industrial operations, including combinations with less that 30% trash or less than 10% medical waste, environmental control device sludges, industrial process biosolids, waste byproducts, maintenance residues, off-test and out-dated materials, and packaging materials.

**COMBUSTION DEVICE:** All types of incinerators are used, including, but not limited to, single and multichamber, fluid bed, rotary kilns, multiple hearth, and tray types. Air pollution control devices are generally add-on units whose type and efficiency are driven by state regulations and permit conditions.

**BASIS FOR SUBCATEGORY BOUNDS:** This subcategory includes solids, liquid, and sludge incinerators mostly within SIC code 28, but includes incinerators burning similar materials at all types of facilities.

**POLLUTANTS CONSIDERED FOR REGULATION:** Particulate matter (total and fine), opacity (as appropriate), $SO_2$, HCl, NOx, CO, Pb, Cd, Hg, and dioxins and furans.

**FLOOR LEVEL OF CONTROL:** To be determined.

**REGULATORY ALTERNATIVES ABOVE FLOOR:** To be determined.

**STATUS OF DATA COLLECTION AND ANALYSIS:** Have identified initial source list; gathering emission and control data.

**ISSUES AND NEEDS:** To be completed.

**OTHER COMMENTS:** Based on the information available: Does the material being combusted lead to different HAP emissions - no information. Does the design of the equipment used lead to different HAP emissions - no information. There currently is no basis for subdividing this subcategory further. Once ICR data on wastes combusted are considered, there may be justification for further subdividing.

**SUBCATEGORY NAME:** Wood and Wood Wastes

**ASSIGNED CAA Section (ICWI OR OSWI):** Section 129 (OSWI).

**GROUPINGS WITHIN SUBCATEGORY:**

Milled Solid and Engineered Wood Wastes
Harvested Wood and Agricultural Wastes
Construction, Demolition, and Treated Wood Wastes
Finishing Wastes (under consideration)

**POPULATION STATISTICS:**

Milled solid and engineered wood incinerators -- *17 units in databases*
Harvested wood and agricultural incinerators -- *8 units in databases*
Construction, demolition, and treated incinerators -- *9 units in databases*
Finishing waste incinerators -- *being evaluated*

**MATERIALS COMBUSTED:**

Milled Solid and Engineered Wood Wastes. Wastes and residues resulting from woodworking manufacturing activities. The specific characteristics of these materials vary depending on the specie of wood (e.g., pine, oak, and poplar) and the engineered wood (e.g. particleboard, plywood, and fiberboard) used. The proportion of adhesives, glues, and binders normally found in engineered wood ranges from 2 to 15 percent by weight depending on the product. The composition is variable and contains no more than 5 percent by weight of other contaminants such as cardboard, paper, paints, and solvents.

Harvested Wood and Agricultural Wastes. Wastes and residues resulting from land clearing, orchard, silviculture, nursery, greenhouse, agricultural, and forest management activities and sawmill operations. The specific characteristics of these materials vary. The moisture content is variable. The composition contains no more than 5 percent by volume of contaminants such as sand, dirt, cardboard, and paper.

Construction, Demolition, and Treated Wood Wastes. *Construction wastes* are wastes and residues resulting from the construction, remodeling, and repairing of individual residences, commercial buildings, and other structures. The composition is variable and generally includes pallets, forming and framing lumber, treated lumber, shingles, tar-based products, plastics, plaster, wallboard, insulation material, plumbing, heating, and electrical parts. *Demolition wastes* are generally the same as construction wastes but may include broken glass, painted or contaminated lumber, chemically treated lumber, white goods, and reinforcing steel. *Treated wood wastes* are wastes and residues resulting from the treatment of wood products that are impregnated or otherwise treated with various

preservatives (e.g., creosote, copper compounds, arsenic compounds, pentachlorophenol, [additional preservatives to be added]) for the purpose of protecting or otherwise extending the structural properties of the wood. The composition is variable and contains such contaminants as organic and inorganic chemicals, metals, oils, paint, solvents, and pigments.

Finishing Wastes. Preliminary data indicate the possibility of incinerators that burn finishing wastes as a primary feed material. If further evaluation confirms the existence of such incinerators, a *finishing waste* category will be added.

**COMBUSTION DEVICE:** Includes single and multi-chamber and fluidized bed incinerators (i.e., devices without heat recovery) of various sizes, and also open burning, air curtain incinerators, and teepees. The types of wasted combusted in each of these combustion devices is illustrated in the following matrix.

| COMBUSTION DEVICE | WOOD AND WOOD WASTE TYPE | | | |
|---|---|---|---|---|
| | Milled solid and engineered | Harvested wood and agricultural | Construction, demolition, and treated | Finishing |
| Open burning | | **U** | ? | |
| Air curtain | ? | **U** | ? | ? |
| Teepee | **U** | ? | ? | ? |
| Incinerator | **U** | ? | **U** | ? |

**BASIS FOR SUBCATEGORY BOUNDS:** Waste and equipment type and possibly size; other criteria are being considered.

**POLLUTANTS CONSIDERED FOR REGULATION:** Section 129 Pollutants.

**FLOOR LEVEL OF CONTROL:** No control.

**REGULATORY ALTERNATIVES ABOVE FLOOR:** Yet to be evaluated, but considering good combustion practices, source separation, particulate controls, scurbbers, ESPs, afterburners, and secondary combustors.

**STATUS OF DATA COLLECTION AND ANALYSIS:**

The survey database indicates six units to have test data, and actions have been initiated to obtain these test reports. The database indicates 11 units to have some kind of control, but independent verification by the Subteam identified no units as having controls. Two

units were identified by the Subteam as being teepee burners and 2 units were identified as air curtains.

The database identified 18 facilities as belonging to, or associated with, various agricultural activities. Independent verification by the Subteam identified no facility as being an agricultural facility. Six facilities no longer had incineration units, five facilities were combusting MWC, three facilities were combusting pathological or animal remains, one facility was combusting chemical off-gas, one facility was a boiler, one facility was a process heater, and one facility could not be contacted by the Subteam.

**ISSUES AND NEEDS:** Test data are lacking. Additional testing may be needed for milled, harvested, and treated wood wastes.

**OTHER COMMENTS:** The Subteam does not know if the applicability of an agricultural subcategory is valid. Although independent verification of the 18 facilities listed as agricultural facilities in the database indicated no such facility or unit exists, the Subteam will continue to carry this category until a more definitive determination is made. For emissions data, the Subteam is considering a NY/EPA test summary, tests reported in the 1998 EPA dioxin emissions inventory report, and test data reported in the ICR survey responses. A number of survey test reports have been requested.

**SUBCATEGORY NAME:** Pathological Waste and Crematory Incinerators

**ASSIGNED CAA Section (ICWI OR OSWI):** Section 129 (OSWI).

**GROUPINGS WITHIN SUBCATEGORY:**

By mass burn rates as follows: less than 100 lb/hr; 100 to 500 lb/hr; over 500 lb/hr. Profiles for each of these groups is given below. Grouping is also possible by the amount and composition of material burned that is not animal or human remains.

PROFILES BY BURN RATE GROUPING

Less than 100 lb/hr mass burn rate

**Typical user profile-** Primarily poultry farmers; secondarily small animal crematories, veterinary centers, humane societies, and pharmaceutical companies. Little or no training on operating parameters by a qualified source.

**Annual operating hours per unit**- unknown

**Typical waste profile-** Primarily poultry carcasses; secondarily small animal remains, the bags/containers used to collect and transport the waste material, and animal bedding.

**Typical design profile-** For poultry units: single chamber systems; fueled with #2 fuel oil, LP gas, or natural gas; no air or temperature controls; manual operating system; batch fed; no add-on emission controls.

100 to 500 lb/hr mass burn rate

**Typical user profile-** Primarily human crematories; secondarily: animal crematories; veterinary clinics; humane societies; and pharmaceutical companies. Training often required and usually conducted by manufacturers or service organizations.

**Annual operating hours per unit**- 700

**Typical waste profile-** Primarily human remains and associated containers; secondarily: animal remains, the bags/containers used to collect and transport the waste material, and animal bedding.

**Typical design profile-** Multiple chamber systems; fueled with natural gas, LP gas, or #2 fuel oil; limited air controls; limited temperature controls; manual control system; batch fed; no add-on emissions control devices.

Greater than 500 lb/hr mass burn rate

**Typical user profile-** Primarily animal disposal systems for hospitals, animal control facilities, and research facilities.

**Annual operating hours per unit-** 1000

**Typical waste profile-** Primarily animal remains, the bags/containers used to contain them, and animal bedding.

**Typical design profile-** Multiple chamber systems; fueled with natural gas, LP gas, or #2 fuel oil; air and temperature controls; automatic control systems; mechanical feed with intermittent charging; no add-on emissions control devices.

**POPULATION STATISTICS:**

Approximately 10,100 units total.

| | | |
|---|---|---|
| Population by size groupings: | Less than 100 lb/hr- | 8000 units |
| | 100 to 500 lb/hr- | 2000 units |
| | Over 500 lb/hr- | 100 units |

**MATERIALS COMBUSTED:** Pathological waste is waste material consisting of only human or animal remains, anatomical parts and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding, if applicable *(from the HMIWI MACT)*.

**COMBUSTION DEVICE:**

These combustors are generally single or multiple chamber designs. They are fueled with fossil fuel and operate with excess air. The wastes, consisting of at least 90% by mass pathological waste as defined above, are fed as single batches or intermittently fed. (Subteam #1 recommends that the 90% limit be determined on a daily basis, but at no time shall any batch consist of less than 70% pathological material.) Typically these combustors have no add-on emission control devices.

A crematory incinerator is a pathological waste incinerator which is primarily used to reduce single batches of human or animal remains and their containers (pathological waste) to their basic elements with the intent of recovering the cremated remains for memorialization purposes.

Pathological waste combustors can be classified into the following four design categories:

Retort incinerators -- multiple chamber incinerator designs in which the secondary chamber is located directly beneath the primary chamber. The purpose of this configuration is that the hearth of the primary chamber is heated by the products of combustion flowing through the secondary chamber. This type of design is superior for controlling the fluids involved in the incineration of human and animal tissue. Because the temperature of the secondary chamber affects the temperature of the primary chamber, excessive temperature in the secondary chamber (above 1600ºF) has a tendency to increase emissions due to the accelerated burning rate of the charge.

In-line incinerators -- similar to the retort design in that the chambers share a common wall. In the in-line design the secondary chamber is not underneath the hearth, but is behind the primary chamber. This design is less effective than the retort in destroying the fluids from human and animal tissue.

Multi-chamber incinerators -- multiple chamber incinerator designs consisting of separated primary and secondary chambers. The secondary chamber is generally located above the primary chamber with the two chambers having no common ceilings, hearth, or walls between them. The temperature in the secondary chamber has little or no influence on the primary chamber temperature. This design is preferable in processing non-tissue wastes.

**BASIS FOR SUBCATEGORY BOUNDS:** As regulation development proceeds, it may be beneficial to make subdivisions based on size, waste mix, or other criteria.

**POLLUTANTS CONSIDERED FOR REGULATION:** Section 129 pollutants.

**FLOOR LEVEL OF CONTROL (EXISTING):** Good combustion practice.

**REGULATORY ALTERNATIVES ABOVE FLOOR (EXISTING):** To be determined.

**BEST CONTROLLED SIMILAR SOURCE (FLOOR-NEW):** To be determined.

**REGULATORY ALTERNATIVES ABOVE FLOOR (NEW):** To be determined.

**STATUS OF DATA COLLECTION AND ANALYSIS:** Have obtained numerous emission test reports on criteria pollutants and have requested additional test information for the Secction 129 pollutants. However, the available data are incomplete and do not represent the scenarios we wish to evaluate. Will have EPA request information from the ICR respondents indicating they have information on the use of add-on emissions control devices.

**ISSUES/NEEDS/COMMENTS:** The majority of the units in the *less than 100 lb/hr* grouping are not represented in the databases.

**OTHER COMMENTS:** To be completed.

**SUBCATEGORY NAME:** Drum Reclaimer Furnaces

**ASSIGNED CAA Section (ICWI OR OSWI):** Section 129 (ICWI).

**GROUPINGS WITHIN SUBCATEGORY:** None.

**POPULATION STATISTICS:**
ICCR Inventory Database - 37 facilities, 43 units
Trade group estimate - 50 units (national population)

**MATERIALS COMBUSTED:** The drum reclaimer furnace is used to reclaim steel containers, most often 55-gallon drums, for reuse or to prepare them for recycling. Drums are prepared for cleaning by abrasive shot blasting by being processed through the furnace, where interior and exterior coatings and residues are burned or pyrolyzed. Drums must be empty as defined by RCRA prior to furnace processing. Natural gas is most often fired as the primary fuel in drum furnaces.

**COMBUSTION DEVICE:** The typical drum reclaimer furnace is a semi-continuous tunnel furnace equipped with a high temperature thermal oxidizer. Heat inputs listed in the ICCR inventory database range fom 1.2 MMBtu/hr to 15.6 MMBtu/hr.

**BASIS FOR SUBCATEGORY BOUNDS:** Due to the easy identification and substantial number of these units in the ICCR inventory database, their unique purpose, and the potential for emissions of Section 129 pollutants, they were subcategorized for further study. Drum reclaimer furnaces are distinct from parts reclaimer incinerators because the drum reclaimer furnaces tend to be larger, with greater heat input, are semi-continuous rather than batch, and hazardous constituents potentially present in the drums may result in emissions different from those of parts reclaimers.

**POLLUTANTS CONSIDERED FOR REGULATION:** These include the complete set of Section 129 pollutants: PM, $SO_2$, CO, NOx, Pb, and HCl, dioxins/furans, Hg, and Cd. PM (RM5) emissions are likely to be fairly well-characterized, and there exist a number of State regulations on PM emissions from these furnaces. However, queries of the SURVEYV2.MDB database indicate that no HAPs data are available. The 112(c)(6) emissions inventory lists a 2,3,7,8-TCDD TEQ emission factor of 1.09E-07 lbs per 1000 drums burned.

**FLOOR LEVEL OF CONTROL:** This is likely to be a high-temperature thermal oxidizer along with practices such as ensuring that the drums are empty of all materials that can be reasonably removed by techniques other than combustion, and thermal oxidizer preheat prior to introducing drums into the furnace. Numerical emission standards for all Section 129 pollutants are required.

**REGULATORY ALTERNATIVES ABOVE FLOOR:** Since the floor control does not control acid gases, a spray dryer or wet scrubber may be considered, depending on emissions of acid gases. Similarly, Cd and Pb are not controlled in a thermal oxidizer, and this suggests specifying a fabric filter. In addition, sections of the Pollution Prevention *ad hoc* workgroup Good Combustion Practice guidelines may be applicable. Numerical emission standards for all Section 129 pollutants are required.

**STATUS OF DATA COLLECTION AND ANALYSIS:** Based on SURVEYV2.MDB, there appear to be no HAPs emission test data available for drum reclaimer furnaces. Subteam #4 is currently working with trade group representatives to further refine combustor description and population estimates and obtain existing emissions data on the other Section 129 pollutants.

**ISSUES AND NEEDS:** Subteam #4 wishes to express a concern on the paucity of emissions data for certain Section 129 pollutants.

**OTHER COMMENTS:** A preliminary recommendation for stack testing three drum reclaimer furnaces was submitted to the Coordinating Committee at the April, 1998, meeting.

**SUBCATEGORY NAME:** Parts Reclaimer Burnoff Ovens

**ASSIGNED CAA Section (ICWI OR OSWI):** Section 129 (ICWI).

**GROUPINGS WITHIN SUBCATEGORY:**

Electrical winding recovery units
Non-PVC coated parts recovery units
PVC coated parts recovery units

**POPULATION STATISTICS:** ICCR Inventory database - 239 facilities, 299 units. Subteam #4 estimates the national populations of the three groupings within the subcategory as follows:

Electrical winding recovery units ~300
Non-PVC coated parts recovery units ~1000
PVC coated parts recovery units ~50

Ongoing review of SURVEYV2.MDB will refine this estimate.

**MATERIALS COMBUSTED:** This type of incinerator is used to reclaim metal parts for reuse in their current form. Coatings such as cured paint, plastisol, or varnish or unwanted parts such as plastic spacers or rubber grommets are burned off a wide variety of metal parts in these units. Plastisol coatings are comprised of polyvinyl chloride and phthalate plasticizer. Plastisol and paint both may contain heavy metal pigments. Metal parts fed to these primarily batch units include paint hooks/racks, electric motor armatures, transformer winding cores, and electroplating racks.

**COMBUSTION DEVICE:** Parts reclaimer burnoff ovens are typically small, batch, fossil fuel-fired units. The parts reclaimer burnoff ovens listed in the ICCR Inventory database list a range of heat inputs from 0.2 MMBtu/hr to 3.7 MMBtu/hr. They are often called burnoff or bakeoff ovens and often not recognized as "incinerators." Operations consist of loading the cold burnoff oven with metal parts, igniting the thermal oxidizer, if present, and main burner (both usually natural gas-fired), and allowing the combustible coating or part to pyrolyze into an fragile ash-like material (often over a period of hours) which may be then mechanically removed or abrasive-blasted off the metal part. Because of the wide variety of parts recycled in these units, facility size varies widely, from small electric motor repair shops to large automobile assembly plants.

**BASIS FOR SUBCATEGORY BOUNDS:** These units are subcategorized on the basis of similar purpose -- recovering a metal part for reuse in its current form. This places them in Section 129 rather than in Section 112 with the scrap metal recovery units. They are kept separate from drum reclaimer furnaces because they tend to be smaller batch units and do not

have the potential for burning RCRA hazardous wastes. However, Subteam #4 expects that at least some Section 129 pollutants are emitted from units in this subcategory.

**POLLUTANTS CONSIDERED FOR REGULATION:** Subteam #4 believes that there is a potential for emissions of all Section 129 pollutants from parts reclaimer burnoff ovens. Review of SURVEYV2.MDB indicates the existence of HAPs emissions data for at least two electrical winding recovery units (ICCR Facility IDs - 34017W091 and 550570416). Subteam #4 possesses a data summary of an old stack test of a PVC coated rack burnoff oven that indicates the presence of HCl and organic compounds in stack emissions. In addition, any metals present in coating pigments also have the potential to be emitted.

**FLOOR LEVEL OF CONTROL:** Based on review of ICCRV2.MDB, at least 25% of parts reclaimer burnoff ovens are equipped with thermal oxidizers. This is consistent with the floor for drum reclaimer furnaces. Practices such as thermal oxidizer preheat and the removal of excess combustible materials (e.g., paper, rope, cloth, and visibly loose coatings/parts) should be specified. Numerical emission standards for all Section 129 pollutants are required.

**REGULATORY ALTERNATIVES ABOVE FLOOR:** The ICCR Inventory database lists a number of units controlled by a wet scrubber or a fabric filter in addition to a thermal oxidizer. The floor level of control (thermal oxidizer) does not control metals or acid gases, and control alternatives above the floor should examine scrubbers, spray dryers, and fabric filters. In addition, sections of the Pollution Prevention *ad hoc* workgroup good combustion practices (GCP) guidelines may be applicable. Numerical emission standards for all Section 129 pollutants are required.

**STATUS OF DATA COLLECTION AND ANALYSIS:** Based on Subteam #4 review of SURVEYV2.MDB, there appear to be at least two parts reclaimer burnoff ovens with HAPs emission data. These test reports are being obtained.

**ISSUES AND NEEDS:** Subteam #4 recommends Section 129 stack testing of two non-PVC coated parts reclaimers burnoff ovens and two PVC coated parts reclaimers burnoff ovens. A draft test recommendation was presented to the Incinerator Work Group at their May, 1998 meeting. Subteam #4 also recommends an analysis of six cured coatings prior to processing in a parts reclaimer unit.

**OTHER COMMENTS:** To be completed.

**SUBCATEGORY NAME:** Unclassified Metals-Related Incinerators

**ASSIGNED CAA Section (ICWI OR OSWI):** Sections 129 or 112.

**GROUPINGS WITHIN SUBCATEGORY:** Not applicable.

**POPULATION STATISTICS:** ICCR Inventory database - 266 facilities, 315 units. (These numbers will be reduced based on review of SURVEYV2.MDB.)

The largest subcategory under Subteam #4 is currently subcategory 4, which includes all metals-related incinerators that could not be definitely assigned to any of the other three subcategories (i.e., drum reclaimers, parts reclaimers, or scrap metal recovery units). It is expected that the third version of the ICR/Survey database will provide additional information to allow distribution of many unclassified units into the other subcategories, as appropriate. Nevertheless, a need to analyze true "unclassified" metals-related incineration units will remain. A detailed analysis of survey responses (SURVEYV2.MDB) is being conducted to sort the unclassified Subteam #4 units into drum reclaimer, parts reclaimer, and scrap metal recovery units, as appropriate.